A Brief History of Technical and Scientific Writing

Yoshiaki Shinoda

In recent decades technical and scientific writing (TSW) as a field of study has emerged as new and complex areas of study in science and technology have developed. Now in the United States, in fact, more than two-hundred colleges and universities provide instruction in TSW (Notes 1). TSW, however, is by no means solely a product of the twentieth century. It has a long history, which can be traced back to ancient times. TSW has actually been around for all of recorded history.

If a TSW study is to have validity in foreign countries, the investigator must be aware of the history of TSW that existed in the sociological setting within which the technical and scientific communication took place. In this article, a brief history of English TSW is introduced from the origins to the present as well as the present situations in the United States and in Japan. This paper attempts to discover and present technical and scientific potential that exists in that human activity known as science. The investigation reveals that there are grounds for viewing TSW as essentially a social activity that is dependent for its success on the cohesiveness brought about through shared beliefs, and that consequently the technical and scientific process is of fundamental importance to it.

The first step in the investigation is to indicate the grounds for viewing

TSW as a distinct human society activity, and the second step, to indicate how to bring TSW to this century.

1 Origins and Early History

Michael G. Moran (1985) observed: "the history of technical and scientific writing has not yet been written, so there exists no coherent body of material to cite" (25). Indeed, the historiography on TSW may be slim. But there is abundant data available upon which researchers can draw to begin putting together a history of TSW.

We can trace the origins of TSW to early human beings. In what is now France and Spain, for example, early humans recorded their techniques for hunting buffalo in cave paintings (Weisman 1985, 4). The earliest cuneiform inscriptions of the Akkadians and Babylonians also served technical and scientific purposes, the ancient Babylonians leaving written records of their astronomical and mathematical knowledge. Technical instructions for producing beer are preserved in the New York Metropolitan Museum on a clay tablet from about 2000 B.C. (Moran 1985, 88). Egyptian technical writing in medicine and mathematics appears on papyrus from about 500 B.C. The writings in mathematics, the physical sciences, biology, and psychology by the ancient Greeks are more than a historical curiosity. Euclid, Archimedes, and Hippocrates influence present-day mathematics, physics, and medicine. The literature of Aristotle can be recognized as technical writing (Weisman 1985, 4).

2 Developments in Europe: Before the Twentieth Century

Elizabeth Tebeaux (1999) recently noted that "English technical writing clearly emerged during the Renaissance and the first decades of printing" (209).

Indeed, in Europe in general during the 15th and 16th centuries when knowledge in science — or natural philosophy, as it was called — dramatically exploded, Renaissance scientists discovered that their modes of discourse were crucial to their larger success. Communication techniques were not only important but indispensable for providing emotional and psychological relief by means of style. Their styles were genuinely a "physick of the understanding" (Stephens 1983, 188). Leonardo da Vinci certainly was writing technical and scientific documents when he made notes on his drawings of mechanical wings. Georg Bauer (1494-1555), the father of mineralogy, wrote the first mineralogy textbook, *De re metallica,* in 1556. This book is said to join technology and news science (Goldsmith 1963, 46). Likewise, the writings of Paracelsus (1493-1541), Copernicus (1473-1543), Galileo (1564-1642), and Kepler (1571-1630) can also be considered TSW (Miller 1975, 198-216).

Early TSW in English can be found in a range of disciplines, not only agriculture, medicine, and science, but major trades and crafts. In seventeenth-century England, The Royal Society of London for the Promotion of Natural Knowledge, founded under the auspices of Charles II in 1662 for the advancement of science, sought to use scientific discourse to solve major social, military, and economic problems while seeking to expand understanding of nature (Goldsmith 1963, 48). "The oldest scientific journal — incidentally, the oldest periodical of any kind — published in Britain is the Philosophical Transactions of the Royal Society, which started in March 1665" (Goldsmith 121). The journal became official in 1752. TSW in English over this time period emerged as a distinct form of discourse. As Tebeaux has written, "... during the 1641-1700 period technical writing gained credibility and prestige." She added: "The most common forms of seventeenth-century technical books were instructions,

descriptions, proposals, and specifications. Many of these technical books show techniques in style, organization, or format that seem decidedly modern" (210). The prose of Francis Bacon (1561-1626), William Harvey (1578-1657), Robert Boyle (1627-1691), and Isaac Newton (1642-1727) can be considered TSW (Hicks 1961, 1).

During the Industrial Revolution, as more complex tools and machinery were developed, the need for explanations of mechanical processes grew rapidly (Shelton 1994, 2). In his *Writing for Engineering and Science* (1961), Tyler G. Hicks points out that "engineers and scientists from the earliest days of recorded history have written reports, proposals, and other documents about their work" (2). But much of the world's best-known TSW was done by outstanding engineers and scientists in the recent past including such important figures as Robert Stevenson (1772-1850), William J. M. Rankine (1820-1872), Henry John Smith (1826-1883) and Earnest Rutherford (1871-1937). Studies show that, in general, the greater humankind's engineering or scientific achievements, the more diverse and sophisticated TSW discourse has become. The eighteenth and nineteenth centuries saw this dynamic clearly at work.

3 The Twentieth Century

Last century an activity that played an especially important role in the development of TSW was military warfare. As late as World War I, weaponry was relatively unsophisticated technologically. Therefore if instruction manuals were inadequate, military users usually could still master a weapon through trial and error (Weisman 1985, 3-9).

During World War II, with the advance of elaborate electrical and hydraulic systems, advanced and sophisticated weapons made effective and readable

instruction manuals more necessary (Shelton 1994, 2). Communications developments during this time allowed the spread of technical documents more than ever before. The Second World War brought a tremendous speed-up in research and technology, culminating with the invention of nuclear bombs. As engineering and science burgeoned so did rhetoric — in form and style — to discuss the work.

The discipline of modern TSW truly emerged during World War II. Increasingly sophisticated technical processes were used to manufacture weapons. With the start of World War II, as aircraft, naval vessels, tanks, and a variety of other weapons became complex, millions of young soldiers were assigned duties covering the operation or maintenance of them (Hicks 1961,1). Effective written instructions were needed. Indeed, World War II speeded up tremendously research and technology. A quick and efficient method to explain new scientific devices and weapons to ordinary soldiers who were going to use them was needed. In order to make these soldiers effective users and repairers, instruction manuals were devised (Weisman 1985, 3-9). Within a few years a huge volume of training and instruction literature was developed. Communications developments during this time allowed the spread of technical documents more than ever before.

With the end of World War II as high-tech products became a standard part of everyday life in mainstream society, complex, comprehensive written instructions for their use became essential. Industry, to meet this need, needed to take a new approach to how it produced its technical literature. Until the start of World War II, most engineers and scientists did most of the TSW related to their projects. Engineers prepared instruction manuals, maintenance brochures, specifications, part lists, and similar material. Scientists wrote

reports covering their research findings, results of investigations, and other related documents. The only major area in which engineers and scientists did not write extensively was industrial advertising. But even in this field engineers and scientists were often asked to check copy and verify technical facts. Thus, there were few qualified technical and scientific writers in any field. But as high technology proliferated in the decades following World War II, more writers with an expertise in science and technology were needed. The introduction of nuclear energy, missiles, satellites, space probes, transistors, and a variety of other new technological devices and products tremendously increased the need for specialist writers who could prepare technical literature.

In general, after World War II, as the aerospace and electronic industries expanded, extensive specialized documentation — prepared by trained writers — was required by private companies and government. The very term "technical writer" encapsulates these developments. "The term first came into use after the Second World War. At that time, the title 'technical writer' was being used to describe people with a technical background whose main function was to present the results of technical progress to non-technical people" (Goldsmith 123).

An especially great surge in TSW, since the end of World War II, came with the computer revolution. Since the development of the first powerful mainframe computers in the 1960s, instruction, description, and documentation within the high-tech arena have become crucial to every facet of our work and home lives. As James H. Shelton, in *Handbook for Technical Writing* (1994, 2), notes, everything from automobile-owner manuals describing computerized dashboards to the instructions for booting up personal computers floods us with technical information.

The advent of the computer has indeed greatly changed the preparation and understanding of English documents. As Kenneth Houp and Thomas Pearsall observed in *Reporting Technical Information* (1984), in the 1970s instruction in technical writing grew rapidly and steadily. Exact figures are difficult to obtain. But according to the sale of textbooks in the field, in the United States alone, the number of students per year taking technical writing jumped from about 25,000 in 1968 to over a quarter million in 1982 (v).

In recent decades, other developments besides the surge in high technology, in particular computers, have contributed to the growth of TSW. For example, there is an organizational and management element which is in part responsible for the growth. TSW is a technological product, a residue of technological management. Management insists that "private companies — multinational companies — are likely to be the most effective mechanisms for the spread and development of useful technology. Technical writing as a profession is a result of such management logic" (Dobrin 1983, 242).

Also, quite recently, as technological products have become more and more sophisticated, hazardous problems have often occurred. The best way to eliminate hazards is to design foolproof products. But this is usually not possible. Therefore, accurate, correct, understandable documents for consumers and workers are required. Hazard communication is the method of informing consumers and workers of the dangers inherent in the materials which they use or the environment in which they work, with the goal of averting health problems and accidents. In industrial countries the right of workers to this information has only recently been established under law. Laws about product liability are indeed relatively new. TSW is a critical element in the implementation and enforcement of laws protecting consumer and worker rights.

TSW has certainly become a specialized and integral part of the modern world. Nowhere is this more true than in the high technology center of the world, the United States.

4 Technical and Scientific Writing in the United States

Although TSW did not originate in the United States, the United States is now the world leader in TSW. The rapid growth of science and technology in the contemporary United States has led to significant changes in the nation's scientific and technical information activities. These changes include, besides the widespread formal instruction in writing for purposes of science and technology, new methods of publishing, disseminating, storing, and retrieving scientific and technical information. Leading organizations of technical communication in the United States are the Society for Technical Communication (Notes 2), the International Council for Technical Communication, and the Association of Teachers of Technical Writing. Understanding the scope and aims of these professional organizations provides a good window on the current state of TSW as a field in the United States.

In 1953, two separate organizations, both interested in improving the practice of technical communication, were founded in the United States: the Society of Technical Writers and the Association of Technical Writers and Editors. In 1971, these organizations merged and took the name the Society for Technical Communication (STC). STC is now the world's largest professional organization serving the technical communication field, with a total of more than 24,000 members and 144 chapters in 39 countries.

STC's mission is to improve the quality and effectiveness of technical communication for audiences worldwide. Its goals:

- Encouraging research in technical communication
- Developing programs for self-improvement of technical communicators
- Developing programs for in-plant training of technical communicators
- Developing college curricula for the education of technical communicators
- Granting scholarships in technical communication
- Recognizing excellence in the products of technical communicators

(*STC Facts*, STC-39-80)

The International Council for Technical Communication (INTECOM) was founded in 1970 by communication societies in the United States, Great Britain, the Netherlands, and Sweden. INTECOM now represents or has established contacts in all countries where technical communication societies exist.

Its main objectives can be summarized as follows:

- to improve the standards of writing, speaking and graphic communication in all applications of science and technology.
- to promote understanding of the importance of technical communication.
- to foster the formation of technical communication societies in countries where they do not yet exist.
- to facilitate the exchange of information and experience among member countries.
- to carry out projects of mutual interest to member countries.

- to assist member organizations in international matters.

(*This is INTECOM*)

The Association of Teachers of Technical Writing (ATTW) was formed in 1973 to encourage dialogue among teachers of technical communication and to develop technical communication as an academic discipline. Its international membership includes over 1,000 teachers and professional communicators.

A telling statistic on the professionalization of TSW as a field of endeavor in the United States is as follows: of the more than two-hundred colleges and universities in the United States which offer instruction in technical communication, eighty universities and colleges offer master's degree programs in the field, and nine offer Ph.D. programs.

5 English Technical and Scientific Writing in Japan

English TSW is just emerging in Japan. There are practitioners but the field's professionalization has advanced more slowly than in other leading industrial nations.

The nation's first technical and scientific writing organization was the Japan Society for Technical Communication (JSTC) (Notes 3), established in 1980, at the request of the Japan Management Association (JMA). JSTC's original main goals were similar to the main goals of the Society for Technical Communication and the Association of Teachers of Technical Writing. JSTC's original main activities were as follows:

To encourage research in technical communication.

To develop technical writing trainers.

To develop correspondence education on technical writing.

To conduct in-house training in technical communication.

To publish a quarterly professional journal.

To conduct seminars on English technical communication.

To publish English standards for technical writers.

To test once a year proficiency in English technical writing.

To conduct a yearly general meeting.

To conduct international conferences in Japan.

In 1983, the Japan Association for Technical English Communication (JATEC) was founded. With some one-hundred fifty members, JATEC is one of the leading organizations for technical and scientific English in Japan today. JATEC prepares and administers the Technical Proficiency Test (TEP Test). Since 1983, JATEC has sponsored a summer seminar for Japanese technical and business English specialists, held at the University of Michigan.

Among universities in Japan, Waseda University has been especially active in advancing the field of technical and scientific English. Besides originating, in 1987, the TEP Test, in conjunction with the University of Michigan, Waseda University sponsors the test. The University offers course instruction in English TSW. Also, since 1988, Waseda University has sent students, for a seminar in technical and business English writing, to the University of Michigan in the summer.

There are, in Japan, today, other leading organizations for promoting technical and scientific English. These organizations include the Japan Association for Technical Communicators, the Japan Association for Translators, and the Manual Study Group.

There are, in Japan, today, still no undergraduate or graduate degree programs in English TSW.

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In this paper, a brief history of English TSW was introduced from the origin to the present as well as the present situations in the United States and in Japan. The first step in the investigation was to indicate the grounds for viewing TSW as a distinct human activity and the second step, to introduce how to inherit the shadow of TSW to this century. We could easily catch a glimpse of English TSW which has been supporting the lives of each individual age from ancient times.

Notes

1. **Some Institutions of Higher Education Worldwide which Provided Instruction in Technical Communication, 1998**

This note lists some graduate, undergraduate, and certificate opportunities.

Institution	Location
Alderson-Broaddus College	USA-West Virginia-Philippi
Alexandria Technical College	USA-Minnesota-Alexandria
American River College	USA-California-Sacramento
American University of Paris	France-Paris
Austin Community College	USA-Texas-Austin
Auburn University	USA-Alabama-Auburn University
Austin Community College	USA-Texas-Austin
Baylor University	USA-Texas
Belleville Area College	USA-Illinois
Bentley College	USA-Massachusetts-Waltham
Black Hawk College	USA-Illinois-Moline
Boise State University	USA-Idaho-Boise
Bob Jones University	USA-South Carolina
Bowling Green State University	USA-Ohio-Bowling Green
Brigham Young University	USA-Utah-Provo
Burlington County College	USA-New Jersey
California Polytechnic State University	USA-California-San Luis Obispo

California State University, Chico	USA-California-Chico
California State University, Fullerton	USA-California-Fullerton
California State University, Hayward	USA-California-Hayward
California State University, Long Beach	USA-California-Long Beach
California State University, Sacramento	USA-California-Sacramento
California University of Pennsylvania	USA-Pennsylvania-California
Capilano College	Canada-British Columbia-North Vancouver
Capitol College	USA-Maryland
Carnegie Mellon University	USA-Pennsylvania-Pittsburgh
Case Western Reserve University	USA-Ohio
Cedarville University	USA-Ohio-Cedarville
Christchurch Polytechnic, New Zealand	New Zealand-Christchurch
Clark College	USA-Washington-Vancouver
Clarkson University	USA-New York-Potsdam
Clemson University	USA-South Carolina-Clemson
Colorado State University	USA-Colorado
Christchurch Polytechnic, New Zealand	New Zealand-Christchurch
Cedarville University	USA-Ohio-Cedarville
Cincinnati State Technical and Community College	USA-Ohio-Cincinnati
Cincinnati Technical College	USA-Ohio-Cincinnati
Clark University	USA-Massachusetts-Worcester
Clarkson University	USA-New York-Potsdam
Clemson University	USA-South Carolina
College of Dupage	USA-Illinois-Glen Ellyn
College of Lake County	USA-Illinois-Grayslake
Colorado State University	USA-Colorado-Ft. Collins
Columbus State Community College	USA-Ohio-Columbus
Concordia University Centre for Continuing Education	Canada-Quebec-Montreal
Cooper Career Institute	USA-Virginia-Hampton
Cuyahoga Community College	USA-Ohio
Cyber State University	USA-California-Lafayette
Danube-University Krems	Austria-Krems
De Anza College	USA-California-Cupertino
Drexel University	USA-Pennsylvania
Durham Technical Community College	USA-North Carolina-Durham
East Carolina University	USA-North Carolina-Greenville
Eastern Michigan University	USA-Michigan-Ypsilanti
Eastern New Mexico University	USA-New Mexico
Eastern Washington University	USA-Washington-Cheney

Ecole Nationale DAerotechnique	Canada-Quebec-Saint-Hubert
Edison Community College	USA-Ohio-Piqua
Elizabethtown College	USA-Pennsylvania-Elizabethtown
Elmhurst College	USA-Illinois-Elmhurst
Embry-Riddle Aeronautical University	USA-Florida-Daytona Beach
Eindhoven University of Technology	Netherlands-5600 MB Eindhoven
Fachhochschule Giessen-Friedberg	Germany-Giessen
Fairleigh Dickinson University	USA-New Jersey-Teaneck
Ferris State University	USA-Michigan-Big Rapids
Fitchburg State College	USA-Massachusetts-Fitchburg
Florida Atlantic University	USA-Florida
Florida Institute of Technology	USA-Florida-Melbourne
Front Range Community College	USA-Colorado-Westminster
Gannon University	USA-Pennsylvania
Gateway Technical College	USA-Wisconsin-Racine
George Brown College	Canada-Ontario-Toronto
George Mason University	USA-Virginia-Fairfax
Georgia Institute of Technology	USA-Georgia-Atlanta
Golden West College	USA-California-Huntington Beach
Grambling State University	USA-Louisiana-Grambling
Grand Canyon College	USA-Arizona-Grand Canyon
Highline Community College	USA-Washington
Hinds Community College	USA-Mississippi
Houston Baptist University	USA-Texas-Houston
Humber College of Applied Arts & Technology	Canada-Ontario-Etobicoke
Illinois Institute of Technology	USA-Illinois-Chicago
Illinois State University	USA-Illinois
Indian National Scientific Documentation Center, A Constituent of Counsil of Scientific and Industrial Research, DST, Govtt. of India	India-New Delhi
Iowa State University	USA-Iowa
James Madison University	USA-Virginia-Harrisonburg
Johnson County Community College	USA-Kansas-Overland Park
Kirkwood Community College	USA-Iowa-Cedar Rapids
Lawrence Technological University	USA-Southfield
Louisiana State University	USA-Louisiana
Louisiana Tech University	USA-Louisiana-Ruston
Madonna University	USA-Michigan
Mankato State University	USA-Minnesota-Mankato

Memphis State University	USA-Tennessee
Mercer University	USA-Georgia-Macon and Atlanta
Metropolitan State College of Denver	USA-Colorado-Denver
Metropolitan State University	USA-Minnesota-St. Paul
Miami University	USA-Ohio-Oxford
Middlesex Community College	USA-Massachusetts-Bedford
Michigan Technological University	USA-Michigan-Houghton
Milwaukee School of Engineering	USA-Wisconsin-Milwaukee
Minnesota State Univ, Mankato	USA-Minnesota-Mankato
Missouri Western State College	USA-Missouri-St. Joseph
Montana College of Mineral Science and Technology	USA-Montana
Montana Tech of the University of Montana	USA-Montana-Butte
Montgomery College	USA-Maryland-Germantown
Moorhead State University	USA-Minnesota-Moorhead
Mount Royal College	Canada-Alberta-Calgary
Murray State University	USA-Kentucky-Murray
Nazareth College of Rochester	USA-New York-Rochester
New Jersey Institute of Technology	USA-New Jersey-Newark
New Mexico State University	USA-New Mexico
New Mexico Tech	USA-New Mexico-Socorro
New York Institute of Technology	USA-New York-Old Westbury
North Carolina State University	USA-North Carolina-Raleigh
Northeastern University	USA-Massachusetts-Boston
Northern Illinois University	USA-Illinois-Dekalb
Northwestern College	USA-Minnesota-St. Paul
Ohio State University	USA-Ohio
Ohio University	USA-Ohio
Oklahoma State University	USA-Oklahoma-Stillwater
Online-Learning Com	Canada-Ontario-Waterloo
Orange Coast College	USA-California-Costa Mesa
Oregon Institute of Technology	USA-Oregon-Klamath Falls
Oregon State University	USA-Oregon-Corvallis
Ouachita Technical College	USA-Arkansas-Malvern
Penn State University	USA-Pennsylvania-University Park
Pennsylvania College of Technology	USA-South Carolina-Williamsport
Pittsburgh State University	USA-Kansas-Pittsburgh
Polytechnic University	USA-New York-Brooklyn
Portland Community College	USA-Oregon-Portland
Portland State University	USA-Oregon-Portland
Purdue University Calumet	USA-Illinois-Ramsey

Ramsey High School	USA-Illinois-Ramsey
Red River College	Canada-Manitoba-Winnipeg
Rensselaer Polytechnic Institute	USA-New York-Troy
Rochester Institute of Technology	USA-New York-Rochester
Rock Valley College	USA-Illinois
Rocky Mountain College of Art & Design	USA-Colorado-Denver
San Diego State University	USA-California-San Diego
San Francisco State University	USA-California-San Francisco
San Jose State University	USA-California-San Jose
Seneca College of Applied Arts & Technology	Canada-Ontario-Toronto
San Jose State University	USA-California-San Jose
Sheffield Hallam University	United Kingdom-Sheffield
Simon Fraser University at Harbour Centre	Canada-British Columbia-Vancouver
Simmons College	USA-Massachusetts-Boston
Southern Illinois University	USA-Illinois
Southern Polytechnic State University	USA-Georgia-Marietta
Southeastern Louisiana University	USA-Louisiana
Southwest College	USA-Texas-Houston
Southwest Missouri State University	USA-Missouri-Springfield
Southwest State University	USA-Minnesota-Marshall
Southwest Texas State University	USA-Texas-San Marcos
St. Louis Community College, Florissant	USA-California-Florissant
SUNY Institute of Technology	USA-New York-Utica
Tarrant County Junior College	USA-Texas
Technical and Professional Writing College of the Humanities	USA-California-San Francisco
Tennessee Technological University	USA-Tennessee-Cookeville
Terra Technical College	USA-Ohio-Fremont
Texas A & M University	USA-Texas-College Station
Texas Tech University	USA-Texas-Lubbock
The College of Great Falls	USA-Montana
The University of Memphis	USA-Tennessee-Memphis
Thomas Nelson Community College	USA-Virginia
Towson State University	USA-Maryland-Baltimore
Universit de Sherbrooke	Canada-Quebec-Sherbrooke
University of Akron	USA-Ohio-Akron
University of Alabama in Huntsville	USA-Alabama-Huntsville
University of Arkansas	USA-Arkansas-Little Rock
University of California Extension, Santa Cruz	USA-California-Cupertino
University of California, Riverside	USA-California-Riverside

University of California, Santa Clara	USA-California-Santa Clara
University of California, Berkeley Extension	USA-California-Berkeley
University of Central Florida	USA-Florida-Orlando
University of Cincinnati	USA-Ohio-Cincinnati
University of Colorado	USA-Colorado-Denver
University of Delaware	USA-Delaware-Newark
University of Denver	USA-Colorado-Denver
University of Findlay	USA-Ohio-Findlay
University of Hartford	USA-Connecticut-Hartford
University of Houston	USA-Texas-Houston
University of Illinois	USA-Illinois-Urbana
University of Karlstad	Sweden-Karlstad
University of Maine	USA-Maine
University of Maryland	USA-Maryland
University of Massachusetts	USA-Massachusetts-Amherst
University of Michigan	USA-Michigan-Ann Arbor
University of Minnesota	USA-Minnesota-St. Paul
University of Minnesota, Crookston	USA-Minnesota-Crookston
University of Missouri	USA-Missouri-Rolla
University of New Mexico	USA-New Mexico-Albuquerque
University of North Carolina	USA-North Carolina-Charlotte
University of North Texas	USA-Texas-Denton
University of Pittsburgh	USA-Pennsylvania-Bradford
University of South Florida	USA-Florida
University of Southern California	USA-California-Los Angeles
University of Southwestern Louisiana	USA-Louisiana-Lafayette
University of Tennessee	USA-Tennessee-Knoxville
University of Texas at San Antonio	USA-Texas-San Antonio
University of Twente	The Netherlands-Enschede
University of Washington	USA-Washington-Seattle
University of Wisconsin	USA-Wisconsin-Eau Claire
Utah State University	USA-Utah-Logan
Washtenaw Community College	USA-Michigan-Ann Arbor
Wayne State University	USA-Michigan-Detroit
Webster Institute of Technical Writing	USA-California-San Francisco
Wentworth Institute of Technology	USA-Massachusetts-Boston
Western Washington University	USA-Washington-Bellingham
Western Wisconsin Technical College	USA-Wisconsin-La Crosse
Westminster College of Salt Lake City	USA-Utah-Salt Lake City
Worcester Polytechnic Institute	USA-Massachusetts-Worcester
Wright State University	USA-Ohio-Dayton

York University	Canada-Ontario-Tronto
Youngstown State University	USA-Ohio-Youngstown

— From Society for Technical Communication, 1998 (http:www.stc.va.org/)

2. Technical and Scientific Writing: Some Related Professional Associations Worldwide (Excluding Japan), 1998

2.1 United States

American Medical Writers Association (AMWA)
American Society of Indexers (ASI)
American Society for Information Science (ASIS)
American Translators Association (ATA)
Association for Business Communication (ABC)
Association for Business Language Education (A.B.L.E.)
Association for Educational Communications and Technology
Association for Women in Communications (AWC)
Council for Programs in Technical and Scientific Communication (CPTSC)
Council of Biology Editors (CBE)
Graphic Communication Association (GCA)
Information Technology Communicators Association (ITCA)
Institute of Electrical and Electronics Engineers' Professional Communication Society (IEEE/PCS)
International Association of Audiovisual Communicators (IAAVC)
International Association of Business Communicators (IABC)
International Interactive Communications Society (IICS)
International Society for Technical Illustrators (ISTI)
National Association of Government Communicators (NAGC)
National Council of Teachers of English (NCTE)

2.2 Other Countries

Australia — Australia Society for Technical Communication (ASTS)
Canada — Societe Quebecoise de la Redaction Professionelle (SQRP)
Denmark — Dantekom
France — Conseil des Redacteurs Techniques (CRT)
Germany — Gesellschaft fuer Technische Kommnuikation (TEKOM)
The Netherlands — Studiekring voor Technische Informatie and Communicatie (STIC)
Norway — Norsk Forening for Teknisk Informasjon (NFTI)
South Africa — Institute of Technical Communicators in Southern Africa (ITCSA)
Sweden — Foreningen Teknisk Information (FTI)
Switzerland — Gesellschaft fur Technische Kommunikation Schweize (TECOM Schweiz)
United Kingdom — Institute of Scientific and Technical Communicators (ISTC)

3. Officers of Japan Society for Technical Communication, 1980

The officers of JSTC, 1980, were as follows:

President:	Tsukasa Shimizu, President of Waseda University
Vice-presidents:	Kazuo Iwama, President of Sony Corporation
	Akira Totoki, President of the Japan Management Association
Executive Directors:	Yoshiaki Shinoda, Professor at Waseda University
	Yoshio Hatakeyama, Senior Executive Vice-president of the Japan Management Association
General Secretary:	Nobuo Ogawa, Director of the Japan Management Association

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